In the claims:

Claims 1-26 (cancelled)

27. (currently amended) A method of visually detecting a single copy of the Her-2/neu gene in chromosomal DNA in an intact cell using brightfield microscopy, comprising:

heating the tissue or cell sample sufficiently to dissociate the native chromosomal target strands of Her-2/neu DNA;

contacting said tissue or cell sample with a detectably-labeled nucleic acid Her-2/neu probe specific for the Her-2/neu gene under conditions that allow the re-hybridization of the labeled nucleic acid Her-2/neu probe and target strands of Her-2/neu DNA to form a target-probe duplex;

contacting the target-probe duplex with an anti-label antibody under conditions allowing the antibody to bind to the label;

contacting the anti-label antibody with an enzyme and a chromogen composition under conditions allowing the development of a visually detectable chromogen substrate signal at each target-probe duplex separate and distinct from the chromogenic signals of other copies of said chromosomal target nucleic acid sequence; and

detecting the chromogenic substrate signal visually using conventional brightfield microscope conditions.

28. (Previously added) The method of claim 27 wherein the detectably-labeled nucleic acid probe is labeled with a moiety selected from the group consisting of digoxygenin, biotin and fluorescein.

29. (Previously added) The method of claim 27 wherein the enzyme is selected from the group consisting of a phosphatase and a peroxidase.

30. (Previously added) The method of claim 27 wherein the chromogen is selected from the group consisting of NBT/BCIP, tetramethylbenzidine and diamino benzidine.